

FIG. 1E

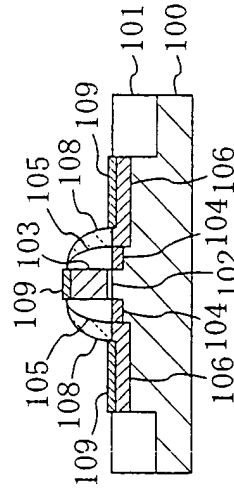


FIG. 1F

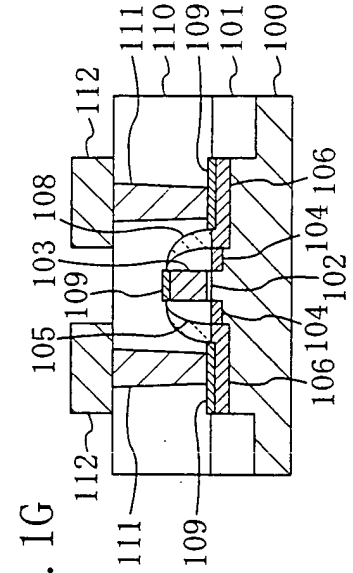


FIG. 1G

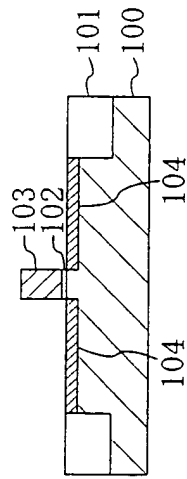


FIG. 1A

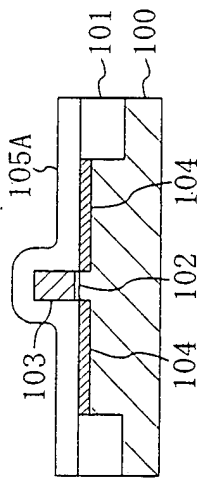


FIG. 1B

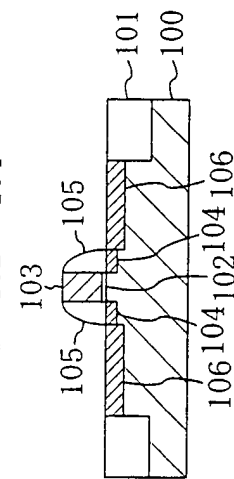


FIG. 1C

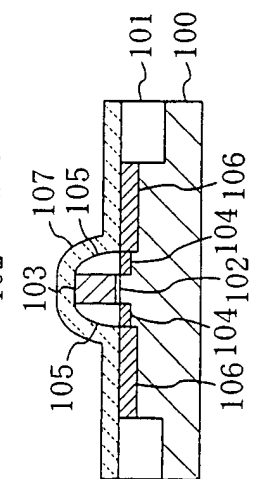


FIG. 1D

[illegible]

FIG. 10 is a cross-sectional view of a semiconductor device. The device includes a substrate 200 with a top surface 201 and a bottom surface 202. A first layer 210 is formed on the top surface 201. A second layer 211 is formed on the first layer 210. A third layer 212 is formed on the second layer 211. A fourth layer 213 is formed on the third layer 212. A fifth layer 214 is formed on the fourth layer 213. A sixth layer 215 is formed on the fifth layer 214. A seventh layer 216 is formed on the sixth layer 215. An eighth layer 217 is formed on the seventh layer 216. A ninth layer 218 is formed on the eighth layer 217. A tenth layer 219 is formed on the ninth layer 218. A eleventh layer 220 is formed on the tenth layer 219. A twelfth layer 221 is formed on the eleventh layer 220. A thirteenth layer 222 is formed on the twelfth layer 221. A fourteenth layer 223 is formed on the thirteenth layer 222. A fifteenth layer 224 is formed on the fourteenth layer 223. A sixteenth layer 225 is formed on the fifteenth layer 224. A seventeenth layer 226 is formed on the sixteenth layer 225. An eighteenth layer 227 is formed on the seventeenth layer 226. A nineteenth layer 228 is formed on the eighteenth layer 227. A twentieth layer 229 is formed on the nineteenth layer 228. A twenty-first layer 230 is formed on the twentieth layer 229. A twenty-second layer 231 is formed on the twenty-first layer 230. A twenty-third layer 232 is formed on the twenty-second layer 231. A twenty-fourth layer 233 is formed on the twenty-third layer 232. A twenty-fifth layer 234 is formed on the twenty-fourth layer 233. A twenty-sixth layer 235 is formed on the twenty-fifth layer 234. A twenty-seventh layer 236 is formed on the twenty-sixth layer 235. A twenty-eighth layer 237 is formed on the twenty-seventh layer 236. A twenty-ninth layer 238 is formed on the twenty-eighth layer 237. A thirtieth layer 239 is formed on the twenty-ninth layer 238. A thirty-first layer 240 is formed on the thirtieth layer 239. A thirty-second layer 241 is formed on the thirty-first layer 240. A thirty-third layer 242 is formed on the thirty-second layer 241. A thirty-fourth layer 243 is formed on the thirty-third layer 242. A thirty-fifth layer 244 is formed on the thirty-fourth layer 243. A thirty-sixth layer 245 is formed on the thirty-fifth layer 244. A thirty-seventh layer 246 is formed on the thirty-sixth layer 245. A thirty-eighth layer 247 is formed on the thirty-seventh layer 246. A thirty-ninth layer 248 is formed on the thirty-eighth layer 247. A fortieth layer 249 is formed on the thirty-ninth layer 248. A forty-first layer 250 is formed on the fortieth layer 249. A forty-second layer 251 is formed on the forty-first layer 250. A forty-third layer 252 is formed on the forty-second layer 251. A forty-fourth layer 253 is formed on the forty-third layer 252. A forty-fifth layer 254 is formed on the forty-fourth layer 253. A forty-sixth layer 255 is formed on the forty-fifth layer 254. A forty-seventh layer 256 is formed on the forty-sixth layer 255. A forty-eighth layer 257 is formed on the forty-seventh layer 256. A forty-ninth layer 258 is formed on the forty-eighth layer 257. A fiftieth layer 259 is formed on the forty-ninth layer 258. A fifty-first layer 260 is formed on the fiftieth layer 259. A fifty-second layer 261 is formed on the fifty-first layer 260. A fifty-third layer 262 is formed on the fifty-second layer 261. A fifty-fourth layer 263 is formed on the fifty-third layer 262. A fifty-fifth layer 264 is formed on the fifty-fourth layer 263. A fifty-sixth layer 265 is formed on the fifty-fifth layer 264. A fifty-seventh layer 266 is formed on the fifty-sixth layer 265. A fifty-eighth layer 267 is formed on the fifty-seventh layer 266. A fifty-ninth layer 268 is formed on the fifty-eighth layer 267. A sixtieth layer 269 is formed on the fifty-ninth layer 268. A sixty-first layer 270 is formed on the sixty-first layer 269. A sixty-second layer 271 is formed on the sixty-second layer 270. A sixty-third layer 272 is formed on the sixty-third layer 271. A sixty-fourth layer 273 is formed on the sixty-fourth layer 272. A sixty-fifth layer 274 is formed on the sixty-fifth layer 273. A sixty-sixth layer 275 is formed on the sixty-sixth layer 274. A sixty-seventh layer 276 is formed on the sixty-seventh layer 275. A sixty-eighth layer 277 is formed on the sixty-eighth layer 276. A sixty-ninth layer 278 is formed on the sixty-ninth layer 277. A seventieth layer 279 is formed on the seventieth layer 278. A seventy-first layer 280 is formed on the seventy-first layer 279. A seventy-second layer 281 is formed on the seventy-second layer 280. A seventy-third layer 282 is formed on the seventy-third layer 281. A seventy-fourth layer 283 is formed on the seventy-fourth layer 282. A seventy-fifth layer 284 is formed on the seventy-fifth layer 283. A seventy-sixth layer 285 is formed on the seventy-sixth layer 284. A seventy-seventh layer 286 is formed on the seventy-seventh layer 285. A seventy-eighth layer 287 is formed on the seventy-eighth layer 286. A seventy-ninth layer 288 is formed on the seventy-ninth layer 287. An eightieth layer 289 is formed on the eightieth layer 288. An eighty-first layer 290 is formed on the eighty-first layer 289. An eighty-second layer 291 is formed on the eighty-second layer 290. An eighty-third layer 292 is formed on the eighty-third layer 291. An eighty-fourth layer 293 is formed on the eighty-fourth layer 292. An eighty-fifth layer 294 is formed on the eighty-fifth layer 293. An eighty-sixth layer 295 is formed on the eighty-sixth layer 294. An eighty-seventh layer 296 is formed on the eighty-seventh layer 295. An eighty-eighth layer 297 is formed on the eighty-eighth layer 296. An eighty-ninth layer 298 is formed on the eighty-ninth layer 297. A ninetieth layer 299 is formed on the ninetieth layer 298. A hundredth layer 300 is formed on the hundredth layer 299. A hundred-first layer 301 is formed on the hundred-first layer 300. A hundred-second layer 302 is formed on the hundred-second layer 301. A hundred-third layer 303 is formed on the hundred-third layer 302. A hundred-fourth layer 304 is formed on the hundred-fourth layer 303. A hundred-fifth layer 305 is formed on the hundred-fifth layer 304. A hundred-sixth layer 306 is formed on the hundred-sixth layer 305. A hundred-seventh layer 307 is formed on the hundred-seventh layer 306. A hundred-eighth layer 308 is formed on the hundred-eighth layer 307. A hundred-ninth layer 309 is formed on the hundred-ninth layer 308. A hundred-tenth layer 310 is formed on the hundred-tenth layer 309. A hundred-eleventh layer 311 is formed on the hundred-eleventh layer 310. A hundred-twelfth layer 312 is formed on the hundred-twelfth layer 311. A hundred-thirteenth layer 313 is formed on the hundred-thirteenth layer 312. A hundred-fourteenth layer 314 is formed on the hundred-fourteenth layer 313. A hundred-fifteenth layer 315 is formed on the hundred-fifteenth layer 314. A hundred-sixteenth layer 316 is formed on the hundred-sixteenth layer 315. A hundred-seventeenth layer 317 is formed on the hundred-seventeenth layer 316. A hundred-eighteenth layer 318 is formed on the hundred-eighteenth layer 317. A hundred-nineteenth layer 319 is formed on the hundred-nineteenth layer 318. A hundred-twentieth layer 320 is formed on the hundred-twentieth layer 319. A hundred-twenty-first layer 321 is formed on the hundred-twenty-first layer 320. A hundred-twenty-second layer 322 is formed on the hundred-twenty-second layer 321. A hundred-twenty-third layer 323 is formed on the hundred-twenty-third layer 322. A hundred-twenty-fourth layer 324 is formed on the hundred-twenty-fourth layer 323. A hundred-twenty-fifth layer 325 is formed on the hundred-twenty-fifth layer 324. A hundred-twenty-sixth layer 326 is formed on the hundred-twenty-sixth layer 325. A hundred-twenty-seventh layer 327 is formed on the hundred-twenty-seventh layer 326. A hundred-twenty-eighth layer 328 is formed on the hundred-twenty-eighth layer 327. A hundred-twenty-ninth layer 329 is formed on the hundred-twenty-ninth layer 328. A hundred-thirtieth layer 330 is formed on the hundred-thirtieth layer 329. A hundred-thirty-first layer 331 is formed on the hundred-thirty-first layer 330. A hundred-thirty-second layer 332 is formed on the hundred-thirty-second layer 331. A hundred-thirty-third layer 333 is formed on the hundred-thirty-third layer 332. A hundred-thirty-fourth layer 334 is formed on the hundred-thirty-fourth layer 333. A hundred-thirty-fifth layer 335 is formed on the hundred-thirty-fifth layer 334. A hundred-thirty-sixth layer 336 is formed on the hundred-thirty-sixth layer 335. A hundred-thirty-seventh layer 337 is formed on the hundred-thirty-seventh layer 336. A hundred-thirty-eighth layer 338 is formed on the hundred-thirty-eighth layer 337. A hundred-thirty-ninth layer 339 is formed on the hundred-thirty-ninth layer 338. A hundred-fortieth layer 340 is formed on the hundred-fortieth layer 339. A hundred-forty-first layer 341 is formed on the hundred-forty-first layer 340. A hundred-forty-second layer 342 is formed on the hundred-forty-second layer 341. A hundred-forty-third layer 343 is formed on the hundred-forty-third layer 342. A hundred-forty-fourth layer 344 is formed on the hundred-forty-fourth layer 343. A hundred-forty-fifth layer 345 is formed on the hundred-forty-fifth layer 344. A hundred-forty-sixth layer 346 is formed on the hundred-forty-sixth layer 345. A hundred-forty-seventh layer 347 is formed on the hundred-forty-seventh layer 346. A hundred-forty-eighth layer 348 is formed on the hundred-forty-eighth layer 347. A hundred-forty-ninth layer 349 is formed on the hundred-forty-ninth layer 348. A hundred-fiftieth layer 350 is formed on the hundred-fiftieth layer 349. A hundred-fifty-first layer 351 is formed on the hundred-fifty-first layer 350. A hundred-fifty-second layer 352 is formed on the hundred-fifty-second layer 351. A hundred-fifty-third layer 353 is formed on the hundred-fifty-third layer 352. A hundred-fifty-fourth layer 354 is formed on the hundred-fifty-fourth layer 353. A hundred-fifty-fifth layer 355 is formed on the hundred-fifty-fifth layer 354. A hundred-fifty-sixth layer 356 is formed on the hundred-fifty-sixth layer 355. A hundred-fifty-seventh layer 357 is formed on the hundred-fifty-seventh layer 356. A hundred-fifty-eighth layer 358 is formed on the hundred-fifty-eighth layer 357. A hundred-fifty-ninth layer 359 is formed on the hundred-fifty-ninth layer 358. A hundred-sixtieth layer 360 is formed on the hundred-sixtieth layer 359. A hundred-sixty-first layer 361 is formed on the hundred-sixty-first layer 360. A hundred-sixty-second layer 362 is formed on the hundred-sixty-second layer 361. A hundred-sixty-third layer 363 is formed on the hundred-sixty-third layer 362. A hundred-sixty-fourth layer 364 is formed on the hundred-sixty-fourth layer 363. A hundred-sixty-fifth layer 365 is formed on the hundred-sixty-fifth layer 364. A hundred-sixty-sixth layer 366 is formed on the hundred-sixty-sixth layer 365. A hundred-sixty-seventh layer 367 is formed on the hundred-sixty-seventh layer 366. A hundred-sixty-eighth layer 368 is formed on the hundred-sixty-eighth layer 367. A hundred-sixty-ninth layer 369 is formed on the hundred-sixty-ninth layer 368. A hundred-seventieth layer 370 is formed on the hundred-seventieth layer 369. A hundred-seventy-first layer 371 is formed on the hundred-seventy-first layer 370. A hundred-seventy-second layer 372 is formed on the hundred-seventy-second layer 371. A hundred-seventy-third layer 373 is formed on the hundred-seventy-third layer 372. A hundred-seventy-fourth layer 374 is formed on the hundred-seventy-fourth layer 373. A hundred-seventy-fifth layer 375 is formed on the hundred-seventy-fifth layer 374. A hundred-seventy-sixth layer 376 is formed on the hundred-seventy-sixth layer 375. A hundred-seventy-seventh layer 377 is formed on the hundred-seventy-seventh layer 376. A hundred-seventy-eighth layer 378 is formed on the hundred-seventy-eighth layer 377. A hundred-seventy-ninth layer 379 is formed on the hundred-seventy-ninth layer 378. A hundred-eightieth layer 380 is formed on the hundred-eightieth layer 379. A hundred-eighty-first layer 381 is formed on the hundred-eighty-first layer 380. A hundred-eighty-second layer 382 is formed on the hundred-eighty-second layer 381. A hundred-eighty-third layer 383 is formed on the hundred-eighty-third layer 382. A hundred-eighty-fourth layer 384 is formed on the hundred-eighty-fourth layer 383. A hundred-eighty-fifth layer 385 is formed on the hundred-eighty-fifth layer 384. A hundred-eighty-sixth layer 386 is formed on the hundred-eighty-sixth

Fig. 1 is a cross-sectional view of a semiconductor device. The device includes a substrate 200. A gate stack 201 is formed on the substrate 200. The gate stack 201 includes a gate electrode 202, a gate insulating layer 203, a gate conductive layer 204, and a gate dielectric layer 205.

This cross-sectional view shows a semiconductor device with a substrate 200. A gate stack 201 is formed on the substrate. A trench 202 is formed in the substrate, with a gate stack 203 on its side wall. A gate stack 204 is formed on the top surface of the substrate. A gate stack 205 is formed on the top surface of the substrate. A gate stack 206 is formed on the top surface of the substrate. A gate stack 207 is formed on the top surface of the substrate.

[illegible]

FIG. 2C

FIG. 3A

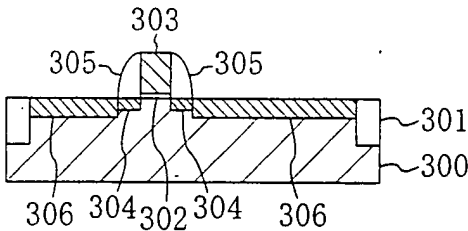


FIG. 3B

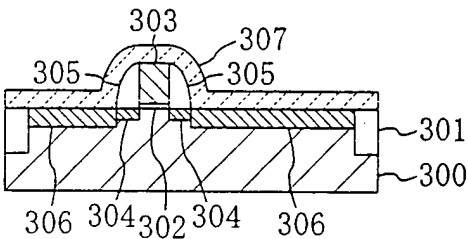


FIG. 3C

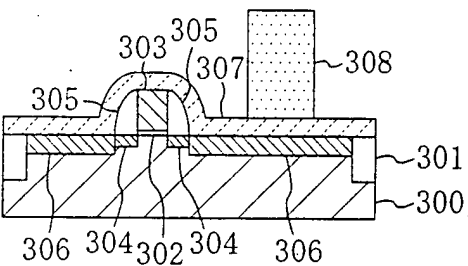


FIG. 3D

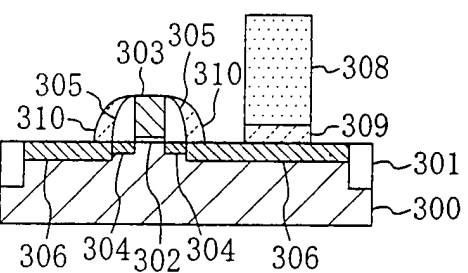


FIG. 4A

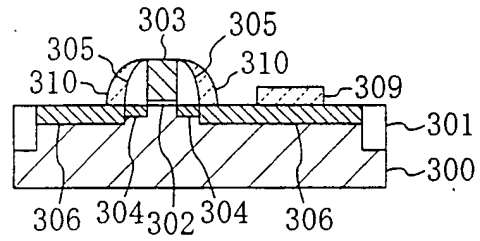


FIG. 4B

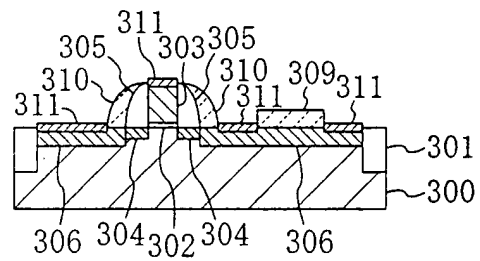
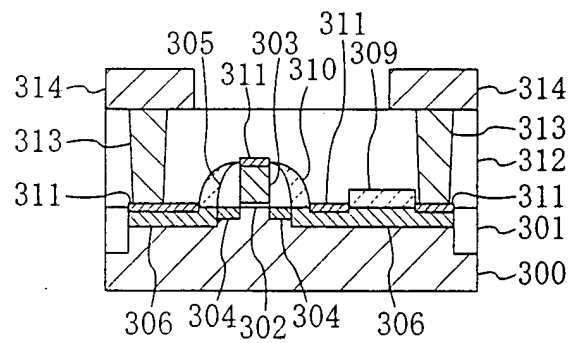


FIG. 4C



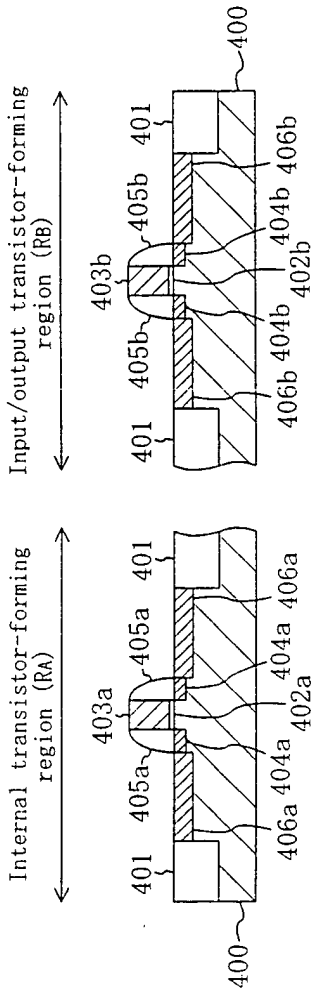


FIG. 5A

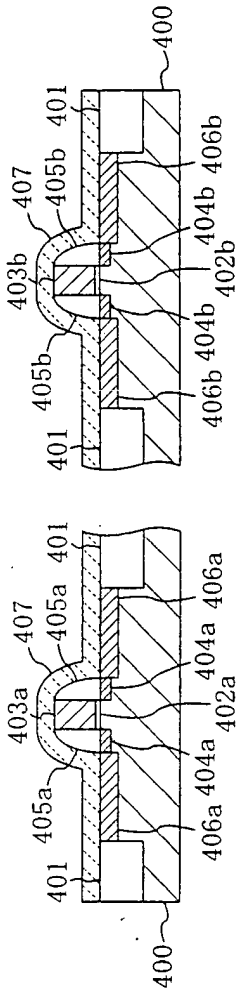


FIG. 5B

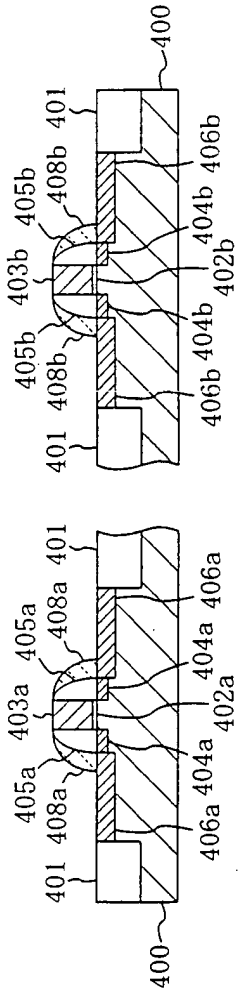


FIG. 5C

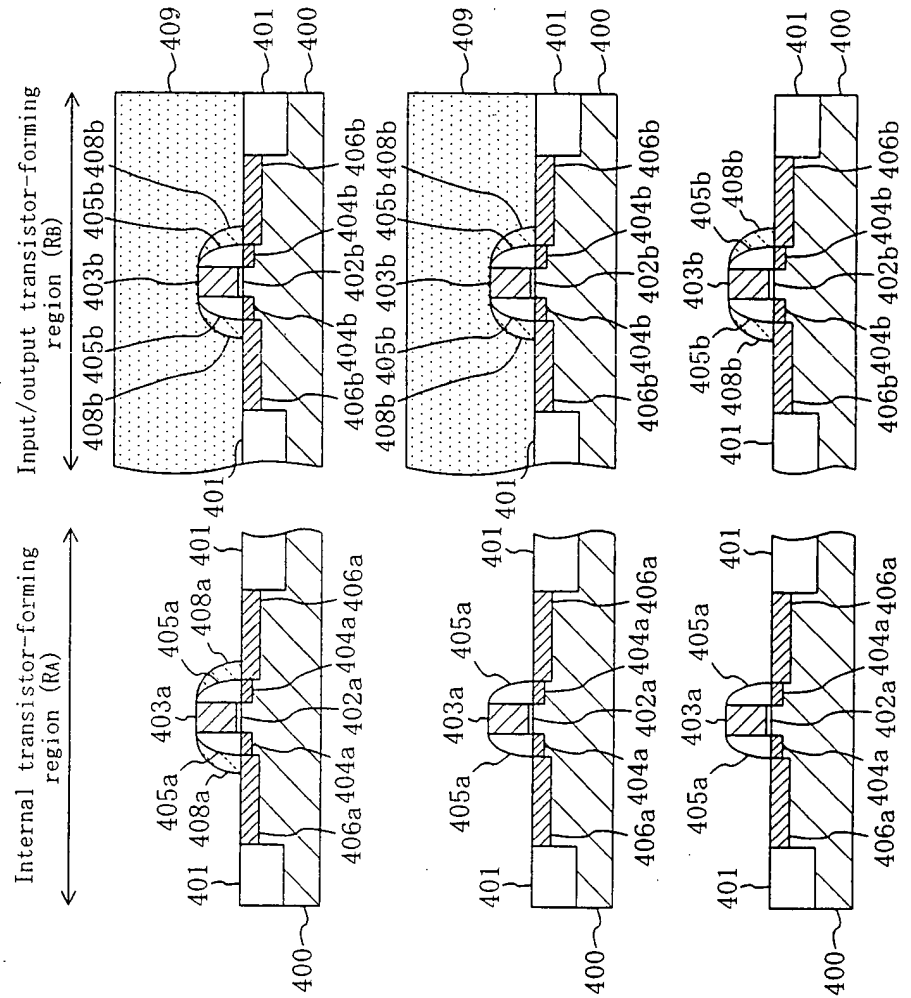


FIG. 6A

FIG. 6B

FIG. 6C

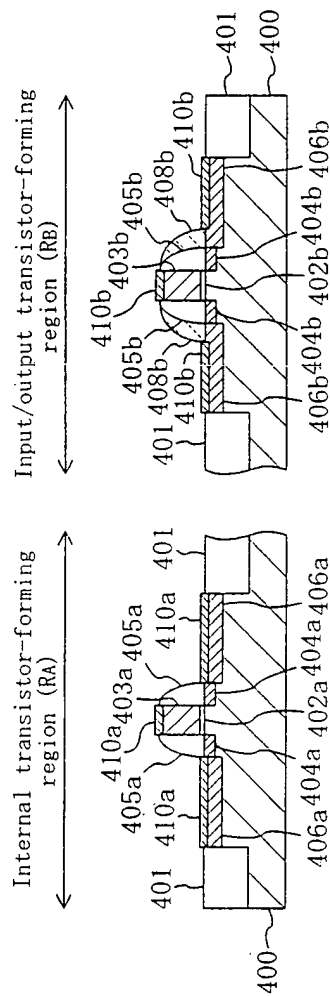


FIG. 7A

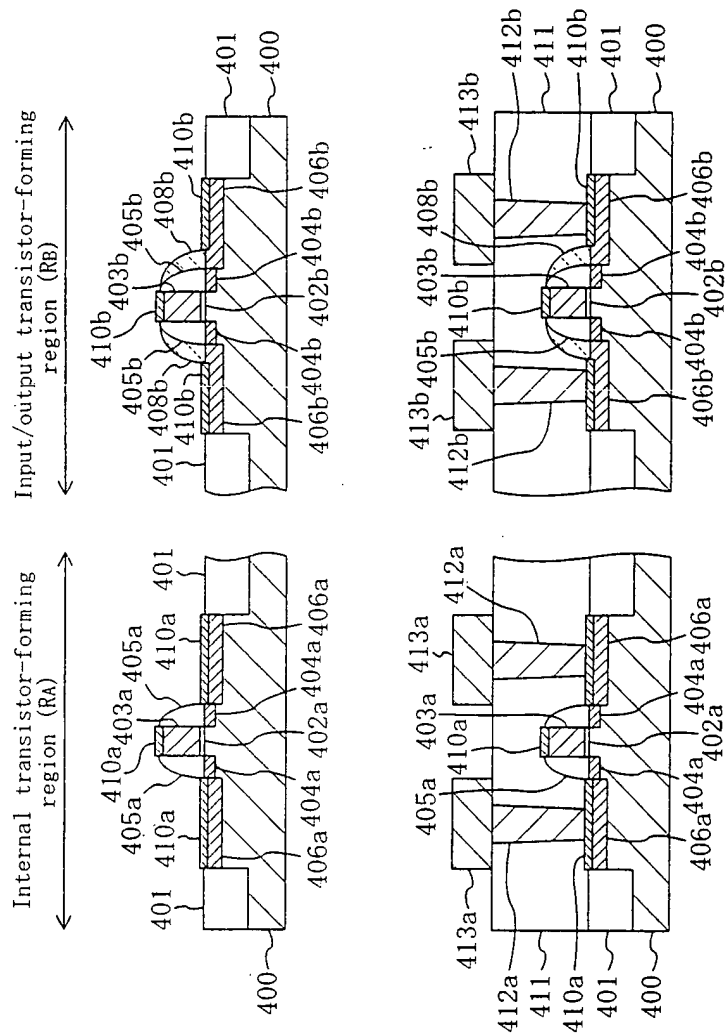


FIG. 7B

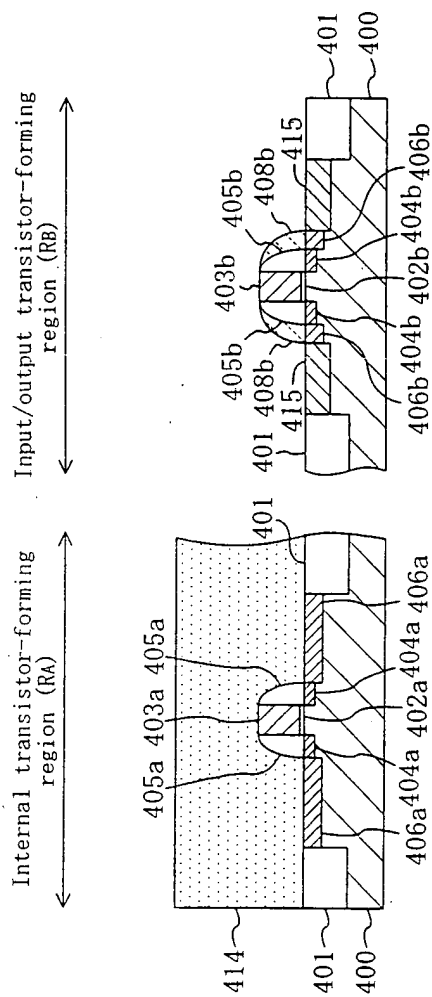


FIG. 8



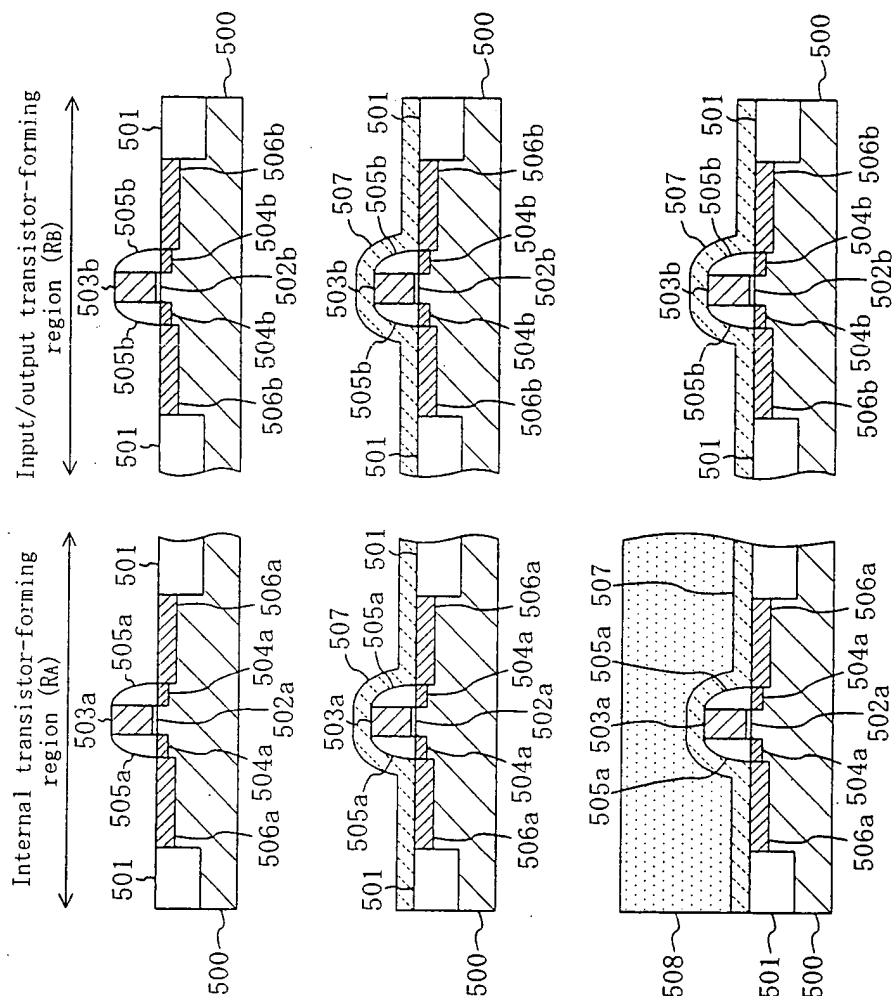


FIG. 9A

FIG. 9B

FIG. 9C

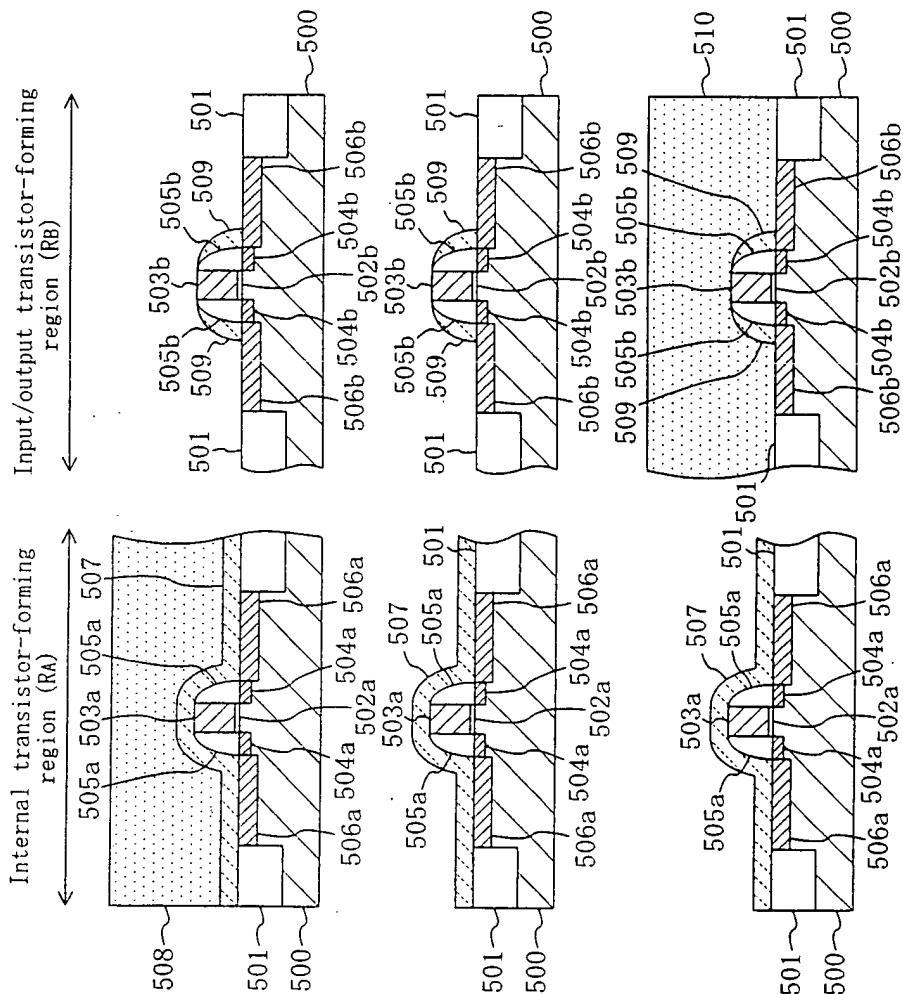


FIG. 10A

FIG. 10B

FIG. 10C

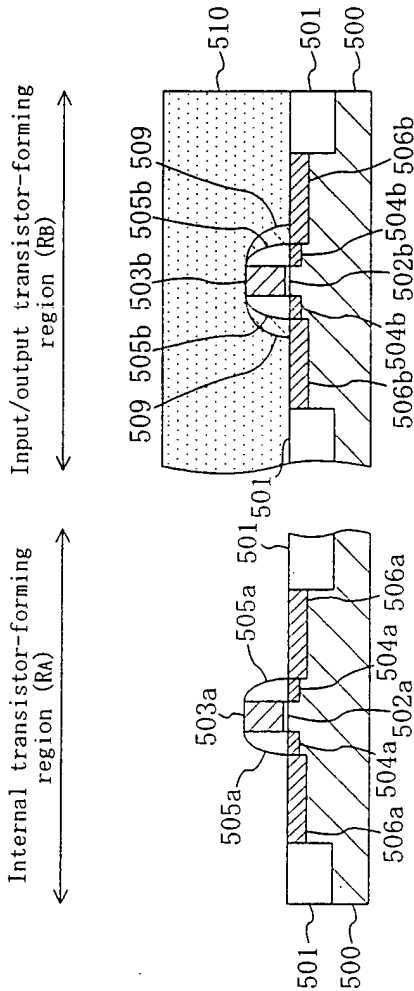


FIG. 11A

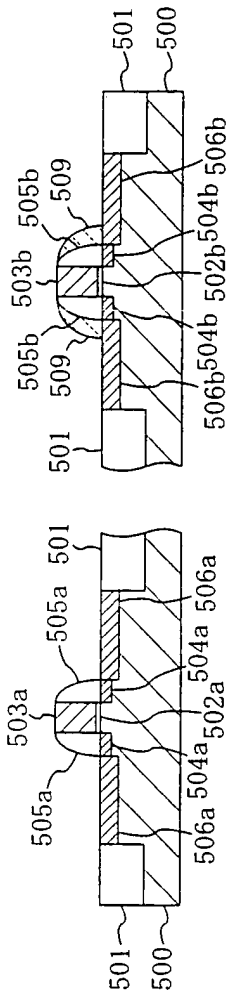


FIG. 11B

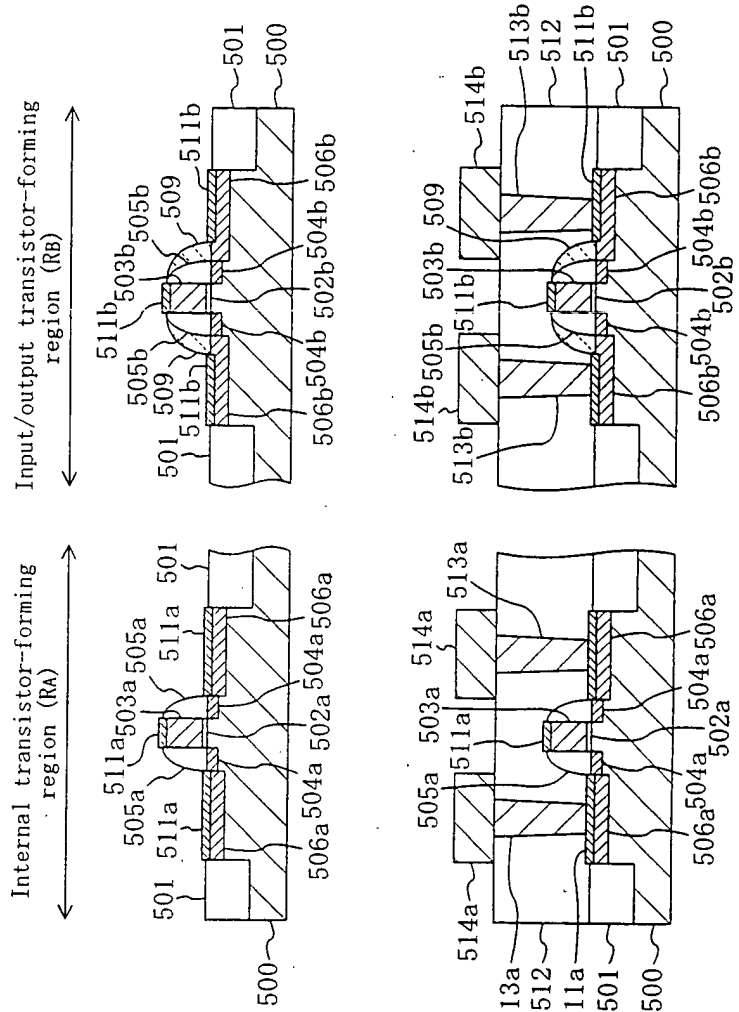


FIG. 12A

FIG. 12B

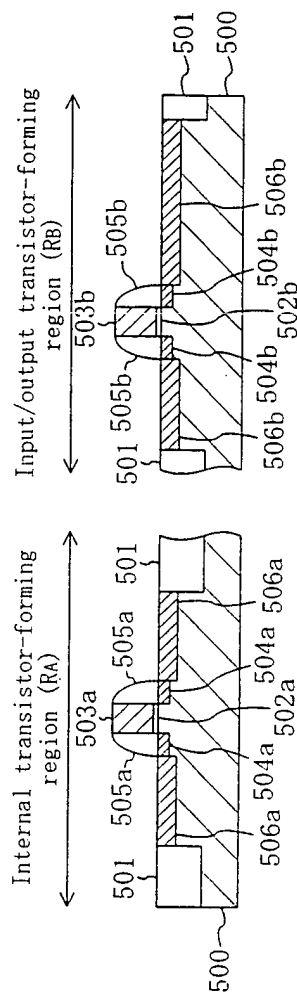


FIG. 13A

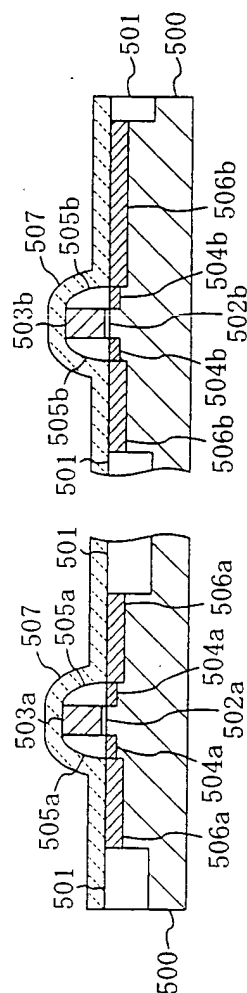


FIG. 13B

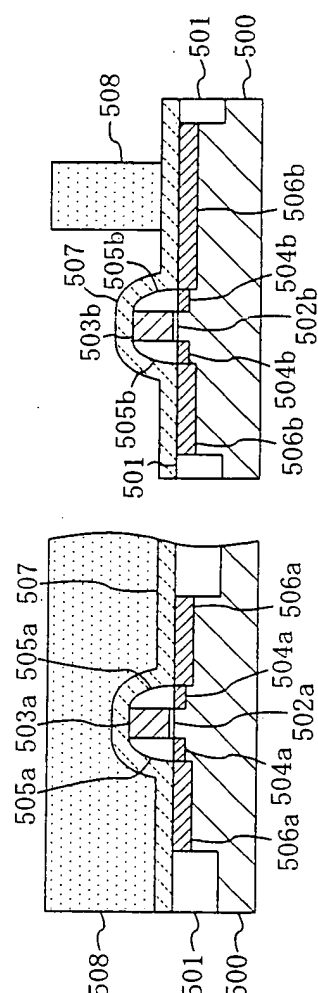


FIG. 13C

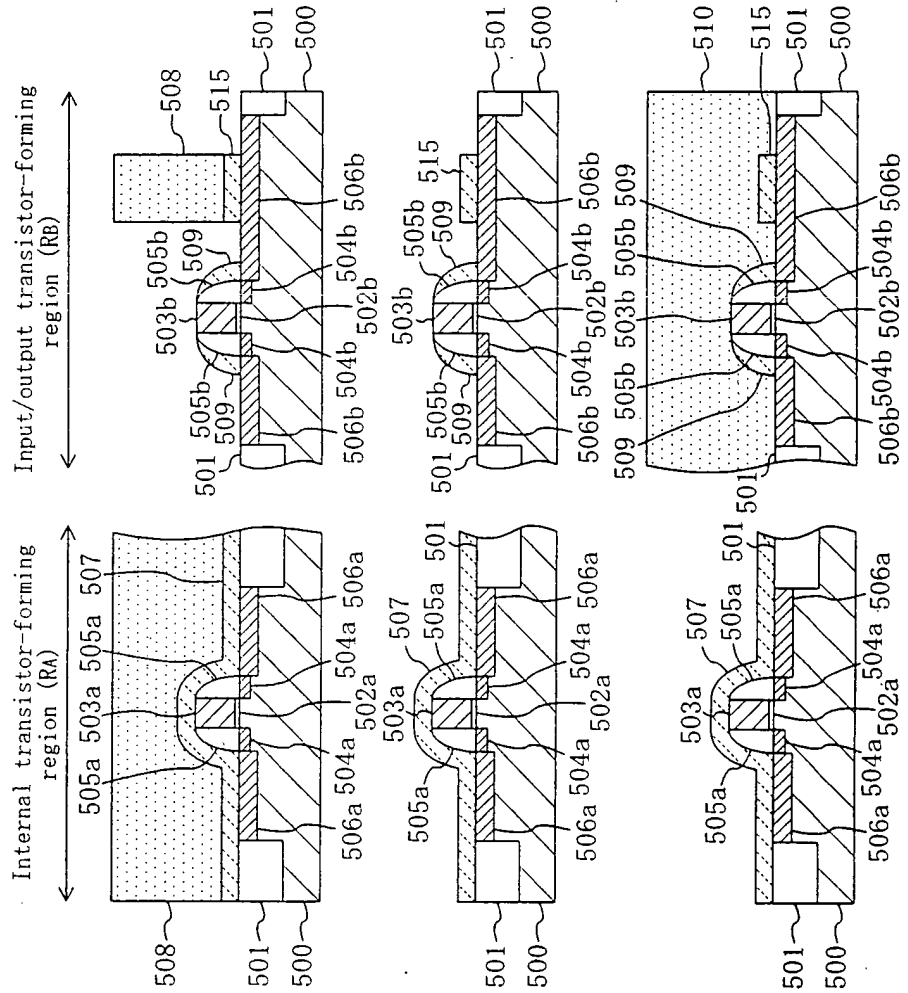


FIG. 14A

FIG. 14B

FIG. 14C

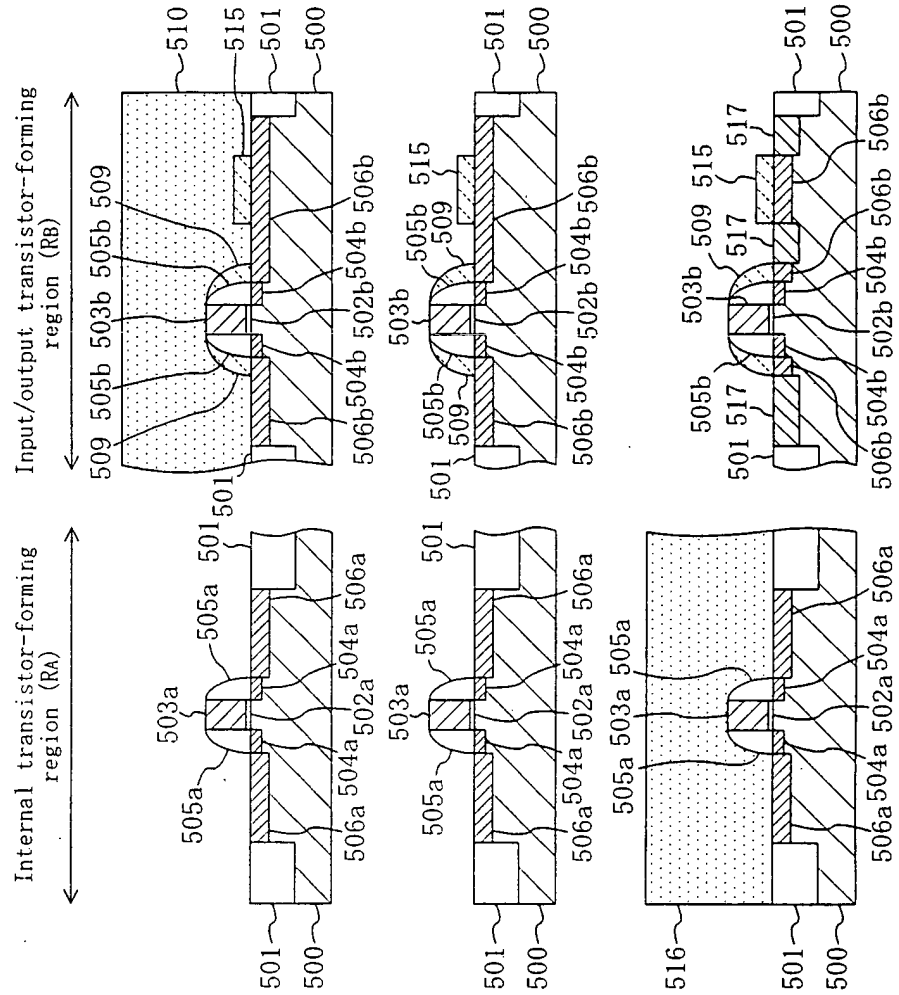


FIG. 15A

FIG. 15B

FIG. 15C

FIG. 16C



FIG. 17A

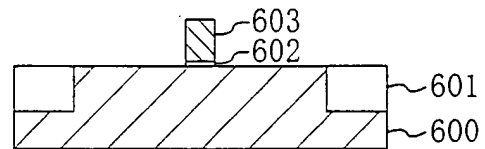


FIG. 17B

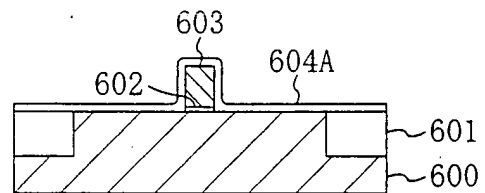


FIG. 17C

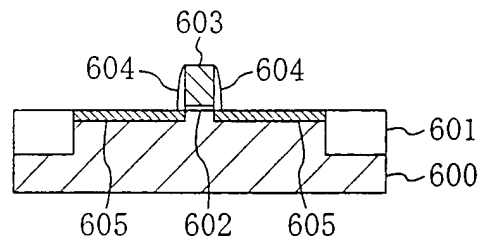


FIG. 17D

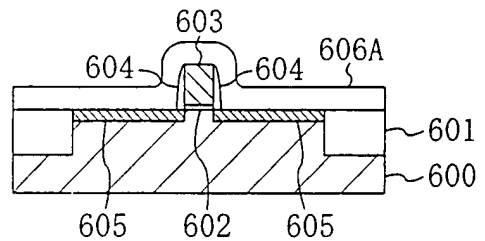


FIG. 18A

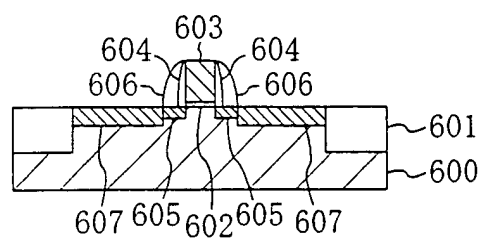


FIG. 18B

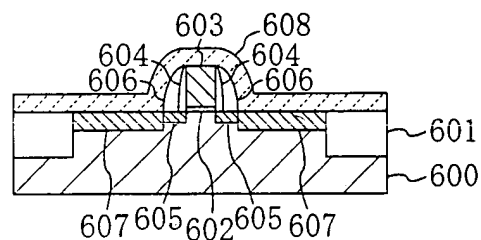


FIG. 18C

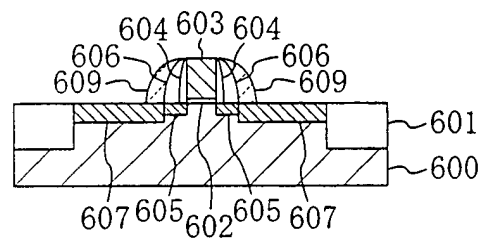


FIG. 18D

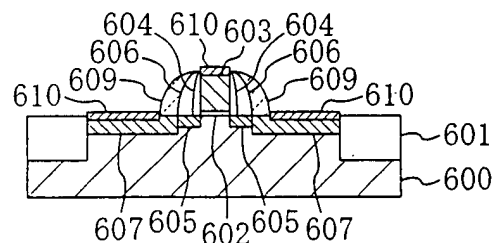


FIG. 18E

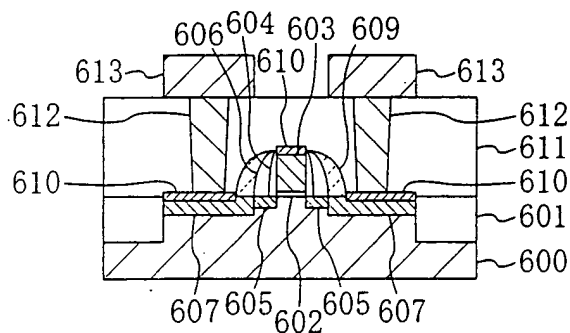


FIG. 19C  
Prior Art

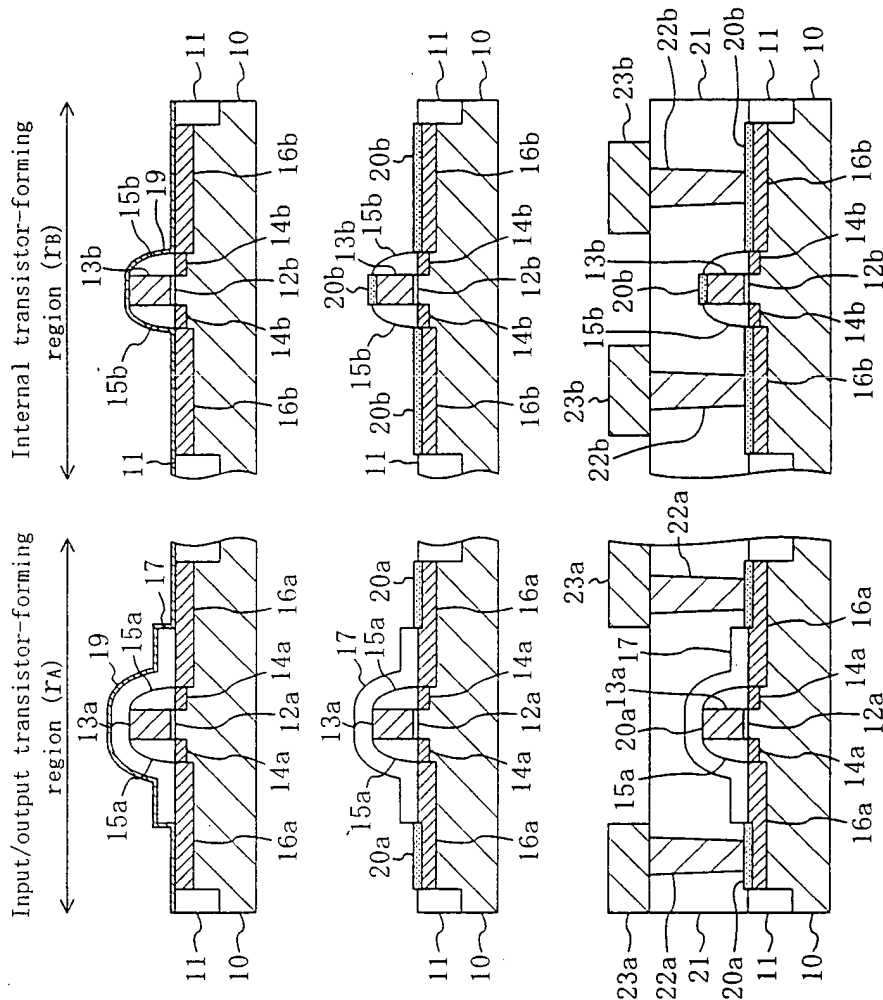


FIG. 20A  
Prior Art

FIG. 20B  
Prior Art

FIG. 20C  
Prior Art